UNIVERSITI PUTRA MALAYSIA

# MILKFISH CONSUMPTION IN CENTRAL JAVA, INDONESIA

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April, 1988.

# MILKFISH CONSUMPTION IN CENTRAL JAVA, INDONESIA

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EDY YUSUF AGUNGGUNANTO

A thesis submitted in partial fulfilment
of the requirements for the degree of Master of Science
in the Faculty of Economics and Management
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Dedicated to

my parents, Gunawan Asyhari and Suriah
my sister and brothers
and Sofwin Hardiati

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# ABSTRAK

Abstrak tesis yang dikemukakan kepada Senat Universiti Pertanian Malaysia sebagai memenuhi sebahagian daripada syarat-syarat untuk mendapatkan Ijazah Master Sains.

KONSUMSI IKAN BANDENG DI JAWA TENGAH,

INDONESIA

oleh

Edy Yusuf Agunggunanto

September, 1987

Penyelia : Profesor Dr. Mohd. Ariff Hussein

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Fakulti : Ekonomi dan Pengurusan

Ikan Bandeng (chanos chanos) merupakan jenis ikan yang disukairamai di Indonesia, khasnya di Jawa. Penghasil ikan bandeng yang terbesar di Indonesia adalah Jawa. Ikan bandeng diternak dalam kolam air payau sejak beberapa ratus tahun lalu. Sebahagian besar ikan ini dipasarkan sebagai ikan mentah dan bakinya dipasarkan sebagai ikan yang telah diproses dalam bentuk ikan bandeng pindang dan ikan bandeng presto.

Kajian ini bertujuan untuk mengetahui pola penggunaan dan faktor-faktor yang mempengaruhi permintaan ikan bandeng di Jawa Tengah, yang dikelompokkan dalam 3 jenis ikan bandeng seperti ikan bandeng segar, ikan bandeng pindang dan ikan bandeng presto.

Pendekatan sosio-ekonomi, sikap dan praktik pembelian ikan bandeng, keinginan dan kesukaan terhadap ikan bandeng digunakan dalam kajian ini, disamping juga mengkaji keanjalan permintaan dan faktor-faktor yang mempengaruhi permintaan ikan bandeng.

Penemuan kajian menunjukkan, sebahagian besar isi rumah-tangga membeli ikan bandeng segar, kemudian ikan bandeng pindang dan ikan bandeng presto. Mereka biasanya mendapatkan ikan bandeng dipasar. Rata-rata pembelian ikan bandeng dalam satu bulan adalah 4 kali untuk ikan bandeng segar, 3 kali untuk ikan bandeng pindang dan satu kali untuk ikan bandeng presto. Dan jumlah purata tiap kali pembelian ialah 0.50 kilogram.

Permintaan ikan bandeng dipengaruhi oleh harga ikan bandeng, harga pengganti, pendapatan dan saiz isi rumah. Keanjalan harga untuk permintaan ikan bandeng adalah sangat tinggi, baik untuk permintaan ikan bandeng segar, pindang mahupun presto. Nilai keanjalan pendapatan adalah kurang daripada satu tetapi lebih daripada kosong.

Permintaan ikan bandeng yang anjal bermakna pengeluar ikan bandeng menghadapi penurunan besar dalam jumlah pendapatan bila harga ikan bandeng naik. Untuk jangka panjang kos pengeluaran se-

unit ikan bandeng harus diturunkan untuk membolehkan penurunan dalam harga ikan bandeng dan pertambahan dalam jumlah pendapatan kepada pengeluar. Keperluan untuk menurunkan kos pengeluaran melalui peningkatan daya pengeluaran ikan bandeng adalah penting untuk mengelakkan penurunan dalam jumlah pendapatan kepada pengeluar disebabkan oleh kenaikan dalam harga ikan bandeng.

## ABSTRACT

An abstract of the thesis presented to Senate of Universiti Pertanian Malaysia in partial fulfilment of the requirements for the Degree of Master of Science.

MILKFISH CONSUMPTION IN CENTRAL JAVA, INDONESIA

by

Edy Yusuf Agunggunanto

September, 1987

Supervisor : Professor Dr. Mohd. Ariff Hussein

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Faculty : Economics and Management

The milkfish (chanos chanos) is a popular food fish in Indonesia, particularly in Java. Milkfish are cultured in brackishwater pond, and its culture has been practised for several hundred years. Most of the production is marketed fresh, while the rest are marketed as processed milkfish such as pindang milkfish and presto milkfish.

This study aims to examine the consumption patterns and factors that influence the demand for milkfish in Central Java. Milkfish is classified into three types, namely, fresh milkfish, pindang milkfish and presto milkfish.

The socio-economic characteristics of the consume their attitudes and practices and their relative desirability and preferences for milkfish are examined in the study.

Results of analysis show that most households consumer fresh milkfish, followed by pindang milkfish and presto milkfish. The fish are usually bought at public markets. On average, consumers buy fresh milkfish four times a month, pindang milkfish about three times a month and presto milkfish once a month. Average quantity bought at each purchase is about 0.6 kilogram.

Demand for milkfish is influenced by its own price, price of substitutes, income and size of household. Own price elasticity of demand for milkfish is very high for all type of milkfish. The income elasticity however is less than one but greater than zero.

The high price elasticity for milkfish implies that milkfish producers would suffer a fall in total revenue if the price of milkfish rises. For the long term it is therefore necessary for producers to reduce the cost per unit milkfish produced through better pond management and increased productivity in order to prevent loss of total revenue due to rise in price of milkfish.

# CHAPTER 1

# INTRODUCTION

## BACKGROUND

Total fish production in Indonesia was estimated at almost 2.26 million tonnes in 1984. Some 12.3 per cent of the total production came from cultural sources, i.e., 6.3 per cent from brackishwater ponds, 3.3 per cent from freshwater ponds and the rest came from rice fields and cage culture. Capture fisheries which accounted for 87.7 per cent of the total production comprised 75.8 per cent marine fish and 11.9 per cent inland open water fish (Table 1).

The total fish production in Indonesia constitute only about 30 per cent of the fisheries resource potential in the country. The fisheries resource potential in the country as measured by its maximum sustainable yield was estimated at 6.6 million tonnes per year for marine fishery resource comprising of 4.5 million tonnes from archipelagic waters and 2.1 million tonnes from The Exclusive Economic Zone areas. The inland open water potential was estimated at about 0.7 million tonnes per year and culture fishery has a potential of about 0.7 million tonnes per year (Dept. of Fisheries, 1986).

TABLE 1

FISH PRODUCTION IN INDONESIA, 1984

| Source | Production (tonnes) | Percentage |
|---|---|---|
| **- Culture** | **276,864** | **12.3** |
| Brackishwater ponds | 142,404 | 6.3 |
| Freshwater ponds | 76,528 | 3.3 |
| Rice Fields | 58,880 | 2.6 |
| Other / Cages | 1,052 | 0.1 |
| **- Capture** | **1,982,125** | **87.7** |
| Inland Open Water | 269,321 | 11.9 |
| Marine | 1,712,804 | 75.8 |
| Total | **2,260,000** | **100.0** |

Source: Deptartment of Fisheries Indonesia, 1986.

In terms of area and productivity, fish culture is expected to increase. In the long run, it is envisaged that fish culture in Indonesia would be as important as capture fisheries (Birowo, 1978).

Most of the 193,000 hectares of brackishwater ponds are found along the Northern Coast of Java from Jakarta to Surabaya and beyond on the Western side of Madura, and along the Coast of South Sulawesi and in Aceh. Brackishwater culture has shown

considerable progress during the last few years, especially in Riau, Lampung, South Kalimantan, North Sulawesi, Central Sulawesi and Southeast Sulawesi (Dept. of Fisheries, 1985).

Milkfish and prawns are the major species cultured in brackishwater ponds. They account for about 60.8 per cent and 20.6 per cent respectively of the total fish production from these ponds in 1983. Species such as mullets and mozambique tilapia, and other species accounted for only 0.8, 9.3 and 1.5 per cent respectively (Dept. of Fisheries, 1985).

The culture of milkfish has been practised for several hundred years in Southeast Asia. Milkfish, valued for its high quality flesh, has become a popular food fish in the Philipines, Taiwan and Indonesia (Smith, 1981:1).

In Central Java, nearly 25,291 hectares of brackishwater ponds are devoted to milkfish husbandry involving 11.088 brackishwater households. They are mainly found in the Northern Coast of Central Java (Dept. of Fisheries, 1985). According to a survey conducted by UNDIP (1980) the average pond area for milkfish pond operator is 2.2 hectares, and the minimum size is 0.7 hectare. Sixty seven per cent of producers were owner operators, and the rest were tenants under "share-cropping"

arrangements. Table 2 shows the size distribution of ponds owned by households in Central Java (Faculty of Economics, Diponegoro University, 1980). The duration of a season from land preparation to harvesting is about six months. Thus, each milkfish pond can be harvested twice a year. Harvesting is done during April-May and December-January.

TABLE 2

POND SIZE DISTRIBUTION FOR HOUSEHOLDS CULTURING MILKFISH IN CENTRAL JAVA, INDONESIA

| Pond Size | Households | Percentage |
|---|---|---|
| < 1.0 | 1 | 1.7 |
| 1.0 - 1.5 | 12 | 20.7 |
| 1.5 - 2.0 | 4 | 6.9 |
| 2.0 - 2.5 | 20 | 34.5 |
| 2.5 - 3.0 | 4 | 6.9 |
| 3.0 - 3.5 | 9 | 15.5 |
| 3.5 - 4.0 | 1 | 1.7 |
| 4.0 - 4.5 | 1 | 1.7 |
| 4.5 - 5.0 | 1 | 1.7 |
| 5.0 - 6.0 | 1 | 1.7 |
| > 6.0 | 4 | 6.9 |
| Total Respondent | 58 | 100.0 |

Source: Faculty of Economics, UNDIP, 1980.

The productivity of milkfish ponds in Central Java has been increasing at an average annual rate of 6.2 per cent during the period 1975 to 1985 (Table 3). However, productivity remains low at about 0.8 tonnes/hectares/year compared with its potential of about 2.5 tonnes/hectares/year (Dept. of Fisheries, 1979). Milkfish ponds in Taiwan, for example, have been producing at 3.0 tonnes/ha/year with intensive management systems (Hadikoesworo, 1983).

TABLE 3

PRODUCTION OF MILKFISH IN CENTRAL JAVA, INDONESIA, 1975 - 1985.

| Year | Production (tonnes) | Brackishwater Ponds Area (ha) | Productivity (tons/per ha) |
|---|---|---|---|
| 1975 | 3,552.3 | 25,617.9 | 0.14 |
| 1976 | 3.374.2 | 25,596.5 | 0.13 |
| 1977 | 3,317.4 | 25,596.5 | 0.13 |
| 1978 | 7,924.5 | 25,596.5 | 0.31 |
| 1979 | 5,506.7 | 21,063.9 | 0.26 |
| 1980 | 11,013.4 | 25,596.5 | 0.43 |
| 1981 | 9,383.2 | 23,704.8 | 0.40 |
| 1982 | 6,058.8 | 24,314.8 | 0.25 |
| 1983 | 8,190.5 | 23,734.5 | 0.34 |
| 1984 | 11,538.5 | 24,522.4 | 0.47 |
| 1985 | 20,806.5 | 25,291.1 | 0.82 |

Source: Central Java Fisheries Statistics, various issues.